

LONG RANGE TRANSPORTATION PLAN

ROADWAY COST

06-21-02

The following bullets briefly describe roadway variables and their associated costs included in the Long Range Transportation Plan.

- **Pavement**
The roadway Pavement was figured at 9" thickness with 12' lanes. The pavement cost is figured using \$5.00 per square foot.
- **Sidewalks**
Sidewalks are 4" thick by 4'-0" wide for one side of the street. The sidewalk cost is figured using \$4.00 per square foot.
- **Bike-Trail**
Bike-trails are 5" thick by 10'-0" wide for one side of the street. The bike-trail cost is figured using \$5.25 per square foot cost.
- **Landscaping**
Landscaping is figured as a lump sum amount of \$50,000 per mile cost.
- **Pedestrian/trail Traffic Signal**
One pedestrian/school traffic signal per mile was figured at \$50,000 each.
- **Full Intersection Traffic Signal**
A full traffic signal was identified at the mid-mile or 1/2 mile segment point; and 1/4 of each major roadway segment end (major/major intersection signal). The sum of 3.5 traffic signals per mile using \$125,000 per each traffic signal equals \$437,500 per mile cost.
- **Roadway Street Lighting**
Street Lighting used 28 poles per mile at \$3,000 per pole equals \$84,000 per mile cost.
- **Storm Sewer**
Storm Sewer placement for the fringe area was figured at \$186,000 per mile cost and the developed area extending the existing system was figured at \$30,000 per mile cost. The Suburban section per mile cost was figured at \$250,000.
- **Water**
Water line adjustments for the fringe area was figured at \$3,000 per mile cost and the developed area was figured at \$7,000 per mile cost. (Hydrants at 420' both sides of Street) add \$55,620 and \$44,620. LFD requires both sides on arterial streets. Use \$58,620 fringe and \$47,640 developed area.
- **Waste Water**
Waste Water cost consisted of resetting of man holes and possible services was figured at \$2,500 per mile cost.
- **Box Culvert**
Box Culverts costs consist of three range costs for single, dual and triple box culverts. The range for a single box varied from \$30,000 to \$75,000, dual box culvert ranges from \$50,000 to \$135,000 and a triple box ranges from \$75,000 to \$182,000. Since each roadway segment may or may not require a box culvert, a high end cost for a single box culvert of \$75,000 was figured for the per mile cost (assuming one culvert per mile).
- **Retaining Walls**
With additional right-of-way needs retaining walls may minimize construction cut or fills. Recent projects have utilized retaining walls where cuts were undesirable. Using 10,000 square foot at \$17.65 per square foot the per mile cost would be \$176,500.
- **Trail Crossing Grade Separations**
Trail crossing grade separations have been included for associated projects. A single lump sum cost of \$375,000 was figured.
- **Bridges**
Bridges have been included where bridge structure construction is required. A single lump sum cost of \$1,500,000 each was figured. Builds 300' of 4-lanes.

- Lincoln Electric System (Underground installation)
Underground placement is figured \$75.00 per foot for fringe areas and \$125.00 per foot for developed areas. \$396,000 for fringe area and \$660,000 for developed areas for per mile costs. This variable was not utilized for projects in the LRTP projects.
- Right-of-Way Acquisition for Developed Area
Right-of-Way acquisition assumed 70% residential, 25% office and 5% commercial along any segment of arterial roadway. Costs associated with residential property is \$1.50 per square foot, office is figured at \$8.50 per square foot and commercial is figured at \$11.50 per square foot. Ten foot acquisition per mile cost is \$198,000.
- Right-of-Way Acquisition for Fringe Area
Right-of-Way acquisition assumed 100% at \$.50 per square foot. Ten foot acquisition per mile cost is \$26,400.
- Wetlands-Flood plain-Native prairie-Endangered Species-Cultural Resource
These variables are included in a rating system with a maximum overall value of 60. The sum of these variables is divided by 60 and multiplied times the per mile cost. Example sum of (.05 + 3.5 + 0 + .07 + 0 + 0) = 3.62 divided by 60 = .06033 multiplied by per mile cost (lets use a D+ roadway cross-section per mile cost of \$2,538,080) = \$153,122 added to roadway per mile cost where applicable.